

In this paper we present a biologically inspired algorithm to control an autonomous robot tracking and pursuing a target. The algorithm was designed to mimic the known behavior of a human neutrophil, a type white blood cell that travels to sites of infection and digests bacterial antagonists. Experimentally, neutrophils are known to be highly sensitive to low levels of chemical stimuli, robust to noise, and are capable navigating unknown terrain; all qualities that would be desired in an autonomous robot. In this paper we show how a neutrophil can be modeled as a collaborative control system and then demonstrate the robustness of this algorithm on a simulated robot pursuing a target. Specifically, we demonstrated that this algorithm is completely unaffected by constant noise and it is robust to random noise levels up to 3.5 times the tracking signal. Additionally, we showed that the robot is able navigate through an unknown and noisy environment